EFFECTS OF SALINITY ON GROWTH AND FEEDING OF JUVENILE MEAGRE, *ARGYROSOMUS REGIUS* (ASSO,1801)

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Introduction

Fish growth is affected by environmental factors such as salinity, photoperiod and temperature (Boeuf and Payan, 2001). The effects of salinity on growth rate may be secondary to the increased energy costs of osmotic and ionic regulation that limits the energy available for growth (Laiz-Carrión et al., 2005).

The aim of this study is to test the influence of two different salinities on growth and feed efficiency.

Materials and Methods

Experimental conditions: **juvenile meagre (n=234, 6.94 ± 0.04cm total length and 4.32 ± 0.07g whole-body wet weight) were randomly divided in 8 tanks of 125L and reared during 45 days. Fish were fed daily at a ration of 4.4%.bw.day^{-1}.**

Temperature: **22.4 ± 0.1ºC.**

Salinity: **12 and 39‰.**

Biometric analysis: **every week, 15 fish from each tank were randomly selected, were anaesthetized with clove oil (0.13ml.L^{-1}).**

Parameters calculated: **total length (TL), body weight (BW), condition factor (K), daily growth rate (DGR), specific growth rate (SGR), food conversion rate (FCR) and protein efficiency ratio (PER).**

Statistical analysis: **one-way ANOVA and Tuckey's test.**

Results and Discussion

Table I.- Growth performance and feed efficiency in juvenile *A. regius* exposed to two different salinities over a period of 45 days. Data are expressed as mean ± S.E.M. (n=60, 4 replicates per group). Different letters indicate significant differences among groups (P<0.05, oneway ANOVA Tuckey test).

Salinity (‰)	BW (g)	TLf (cm)	K	DGR (g.day^{-1})	SGR (%.day^{-1})	FCR	PER
12	21.6 ± 0.5^{a}	12.3 ± 0.1^{a}	1.20 ± 0.05^{a}	0.41 ± 0.01^{a}	3.83 ± 0.04^{a}	1.14 ± 0.02^{a}	2.5 ± 0.4^{a}
39	17.2 ± 0.5^{b}	11.6 ± 0,1^{b}	1.18 ± 0.05^{b}	0.31 ± 0.00^{b}	3.30 ± 0.02^{b}	1.34 ± 0.02^{b}	1.9 ± 0.4^{b}

❖ Mortality observed, throughout the experimental period, was 2% at salinity 12 and 3% at salinity 39.

❖ Condition factor (K) was significant differences on 21 day with better values at salinity 12. In addition, juvenile meagre maintained at salinity 12 had a better results in DGR, SGR, FCR and PER than fish exposed to salinity 39.

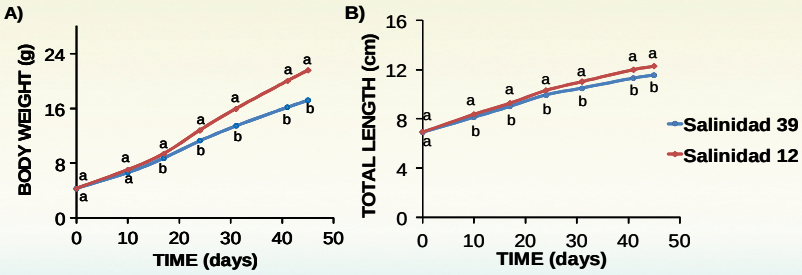

Figure I.- Changes in body weight (A) and total length (B) over 45 days in *A. regius* exposed to two different salinities over a period of 45 days. Data are expressed as mean ± S.E.M. (n=60, 4 replicates per group). Different letters indicate significant differences among groups (P<0.05, oneway ANOVA Tuckey test).

❖Juvenile *A. regius* exposed to salinity 39 presented lower growth compared to animals kept at 12.

❖ These results are similar to the observed in juvenile of sciaenid species such as *Argyrosomus japonicus* (Fielder and Bardsley, 1999) and *Argyrosomus inodorus* (Ferreira and Kaiser, 2008).

❖ In posterior phases of cultivate *A. regius* also presents better growth in salinity 13 (El-Shebly et al., 2007; Muñoz et al., 2008).

❖ In juveniles of other euryhaline species such as *Pagrus pagrus* (Vargas-Chacoff et al., 2009) and *Sparus aurata* (Laiz-Carrión et al., 2005) were observed also better growth rates at salinities below 35.

According to the results obtained, we could say that it is possible to culture juvenile meagre at low salinities, with higher growth and better food efficiency.

Acknowledgements

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